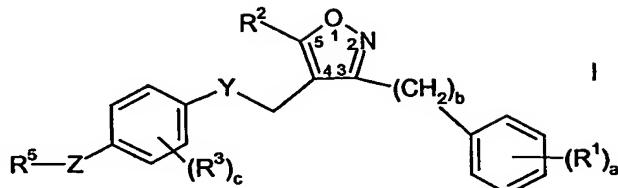


CLAIMS

That Which Is Claimed Is:

1. A compound of formula (I):

5



wherein:

a is 1-5;

10 each R¹ is the same or different and is independently selected from the group consisting of halo, alkyl, alkenyl, -OR⁶, -S(O)_fR⁶, -NR⁶R⁷, -R⁴OR⁶, -R⁴S(O)_fR⁶, -R⁴NR⁶R⁷ and cyano;

b is 0-3;

R² is selected from the group consisting of alkyl, alkenyl, C₃₋₆cycloalkyl,

15 C₃₋₆cycloalkenyl, -OR⁶, -NR⁶R⁷, -R⁴OR⁶, -R⁴NR⁶R⁷, cyano and nitro;

Y is -O- or -N(R⁸)-;

c is 0-4;

each R³ is the same or different and is independently selected from the group

consisting of halo, alkyl, alkenyl, alkynyl, cycloalkyl, cycloalkenyl, -OR⁶, -COR⁶,

20 -CO₂R⁶, -CH(R⁶)OR⁷, -S(O)_fR⁶, -NR⁶R⁷, -R⁴cycloalkyl, -R⁴OR⁶, -R⁴COR⁶, -R⁴CO₂R⁶, -R⁴S(O)_fR⁶, -R⁴NR⁶R⁷ and cyano

Z is selected from the group consisting of -O-R⁴-, -R⁴-O-, -S(O)_f-R⁴-, -R⁴-S(O)_f-, -N(R⁸)-R⁴-, -R⁴-N(R⁸)-, -C(O)N(R⁸)-, -C(O)R⁴N(R⁸)-, -S(O)_fN(R⁸)- and -S(O)_fR⁴N(R⁸)-;

25 each R⁴ is the same or different and is independently selected from the group consisting of alkylene and alkenylene;

R⁵ is selected from the group consisting of R⁶O-, R⁶O₂C-, and



30 wherein Ring A is aryl or a 5-12 membered heterocycle or heteroaryl;

d is 0-4;

each R⁹ is the same or different and is independently selected from the group consisting of halo, alkyl, alkenyl, alkynyl, cycloalkyl, -OR⁶, -COR⁶, -CO₂R⁶, -CH(R⁶)OR⁷, -S(O)_fR⁶, -NR⁶R⁷, -R⁴cycloalkyl, -R⁴OR⁶, -R⁴COR⁶, -R⁴CO₂R⁶, -R⁴S(O)_fR⁶, -R⁴NR⁶R⁷, cyano, 5-9 membered heterocycle and 5-9 membered heteroaryl;

each R⁶ and R⁷ are the same or different and are each independently selected from the group consisting of H, alkyl, alkenyl, C₃₋₆cycloalkyl and C₃₋₆cycloalkenyl;

R⁸ is H or alkyl; and

each f is the same or different and is independently selected from the group

consisting of 0, 1 and 2;

or a pharmaceutically acceptable salt, solvate or physiologically functional derivative thereof.

2. The compound according to claim 1 wherein a is 1-2.

15

3. The compound according to any of claims 1-2 wherein each R¹ is the same or different and is independently selected from the group consisting of halo and -OR⁶.

4. The compound according to any of claims 1-3 wherein b is 0 or 1.

20

5. The compound according to any of claims 1-4 wherein R² is selected from the group consisting of alkyl and C₃₋₆cycloalkyl.

6. The compound according to any of claims 1-5 wherein Y is -O-.

25

7. The compound according to any of claims 1-6, wherein c is 0-2.

8. The compound according to any of claims 1-7, wherein each R³ is the same or different and is independently selected from the group consisting of halo and alkyl.

30

9. The compound according to any of claims 1-8, wherein Z is selected from the group consisting of -O-R⁴-, -R⁴-O-, -S(O)_f-R⁴-, -N(R⁸)-R⁴-, -R⁴-N(R⁸)-, -C(O)N(R⁸)-,

$-\text{C}(\text{O})\text{R}^4\text{N}(\text{R}^8)-$, $-\text{S}(\text{O})_f\text{N}(\text{R}^8)-$ and $-\text{S}(\text{O})_f\text{R}^4\text{N}(\text{R}^8)-$.

10. The compound according to any of claims 1-9, wherein R^8 is H or methyl.

5 11. The compound according to any of claims 1-10, wherein R^5 is selected from the group consisting of $\text{R}^6\text{O}_2\text{C}-$, and $(\text{R}^9)_d-\text{A}-\text{R}^5$.

12. The compound according to any of claims 1-11, wherein R^5 is $(\text{R}^9)_d-\text{A}-\text{R}^5$ and Ring A is phenyl or furan.

10

13. A pharmaceutical composition comprising a compound according to any of claims 1-12.

15

14. The pharmaceutical composition according to claim 13, further comprising a pharmaceutically acceptable carrier or diluent.

15. A method for the treatment or prophylaxis of a condition mediated by FXR in a subject, said method comprising administering to said subject a therapeutically effective amount of a compound according to any of claims 1-12.

20

16. A method for the treatment or prophylaxis of cardiovascular disease in a subject, said method comprising administering to said subject a therapeutically effective amount of a compound according to any of claims 1-12.

25

17. The method according to claim 16, wherein said cardiovascular disease is selected from atherosclerosis and hypercholesterolemia.

30

18. A method for the treatment or prophylaxis of cholestatic liver disease in a subject comprising administering a therapeutically effective amount of a compound according to any of claims 1-12.

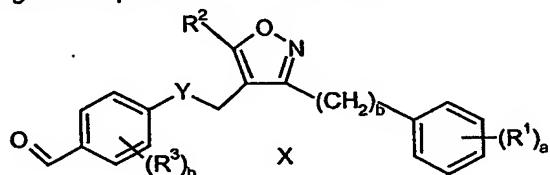
19. A method for the treatment or prophylaxis of organ fibrosis in a subject comprising administering a therapeutically effective amount of a compound according to any of claims 1-12.

5 20. A method for increasing HDL cholesterol in a subject, said method comprising administering a therapeutically effective amount of a compound according to any of claims 1-12.

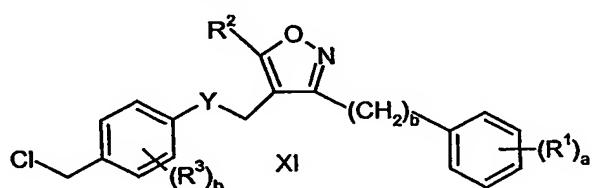
10 21. A method for lowering triglycerides in a subject, said method comprising administering a therapeutically effective amount of a compound according to any of claims 1-12.

22. A process for preparing a compound according to any of claims 1-12, said process comprising the steps of:

15 a) reducing a compound of formula (X):

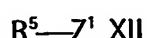


20 followed by chorination to prepare a compound of formula (XI):



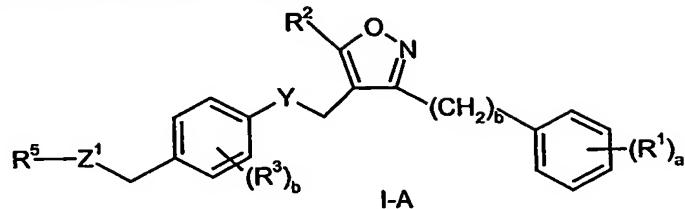
25 and

b) reacting the compound of formula (XI) with a compound of formula (XII):



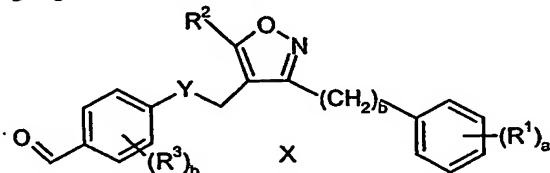
wherein Z^1 is $-O-$, $-S(O)R-$ or $-N(R^8)-$;

to prepare a compound of formula (I-A):

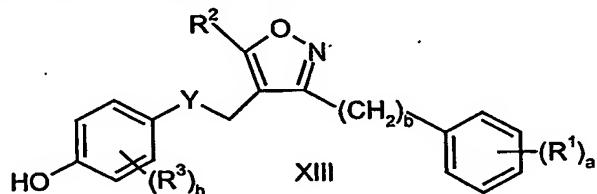


23. A process for preparing a compound according to any of claims 1-12, said process comprising the steps of:

10 a) rearranging the carbonyl functionality of the compound of formula (X):

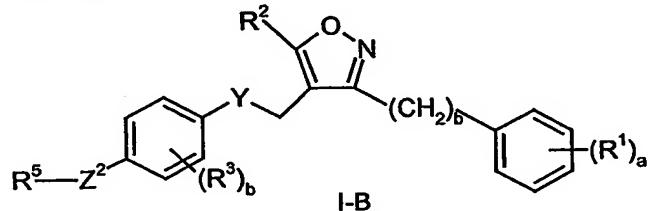


15 followed by hydrolysis to prepare a compound of formula (XIII):



20 and

b) reacting the compound of formula (XIII) with a suitable electrophile to prepare a compound of formula (I-B):

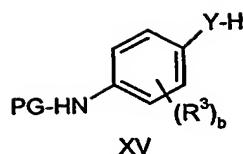


wherein Z^2 is -R^4-O-.

24. A process for preparing a compound according to any of claims 1-12, said

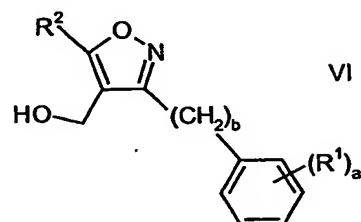
30 process comprising the steps of:

a) reacting a protected compound of formula (XV):



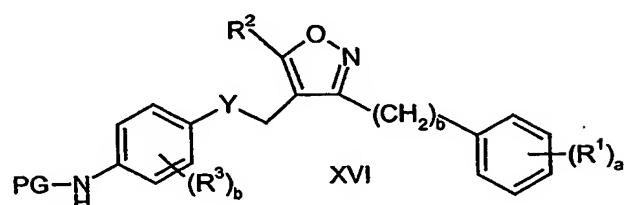
5 wherein PG is a protecting group;

with a compound of formula (VI):



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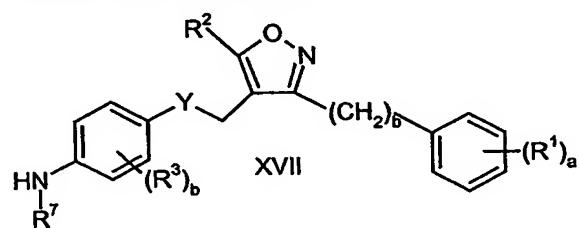
to prepare a compound of formula (XVI):



15

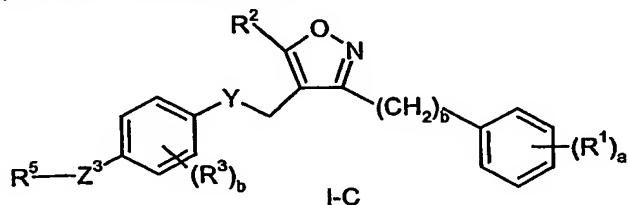
b) optionally alkylating the compound of formula (XVI), followed by deprotecting the compound of formula (XVI) to prepare a compound of formula (XVII):

20



and

25 c) reacting the compound of formula (XVII) with a suitable electrophile to prepare a compound of formula (I-C):



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wherein Z^3 is selected from the group consisting of $-R^4-O-$, $-R^4-S(O)R-$, $-R^4-N(R^8)-$, $-CON(R^8)-$, $-C(O)R^4N(R^8)-$, $-S(O)R^4N(R^8)-$ and $-S(O)R^4N(R^8)-$.

25. A compound according to any of claims 1-12 for use in therapy.

5

26. A compound according to any of claims 1-12 for use in the treatment or prophylaxis of a condition mediated by FXR in a subject.

10 27. A compound according to any of claims 1-12 for use in the treatment or prophylaxis of cardiovascular disease in a subject.

28. A compound according to any of claims 1-12 for use in the treatment or prophylaxis of atherosclerosis or hypercholesterolemia in a subject.

15

29. A compound according to any of claims 1-12 for use in the treatment or prophylaxis of cholestatic liver disease in a subject.

30. A compound according to any of claims 1-12 for use in the treatment or prophylaxis of organ fibrosis in a subject.

20

31. A compound according to any of claims 1-12 for use in increasing HDL cholesterol in a subject.

25

32. A compound according to any of claims 1-12 for use in lowering triglycerides in a subject.

33. Use of a compound according to any of claims 1-12 for the preparation of a medicament for the treatment or prophylaxis of a condition mediated by FXR in a subject.

30

34. Use of a compound according to any of claims 1-12 for the preparation of a medicament for the treatment or prophylaxis of cardiovascular disease in a subject.

35. Use of a compound according to any of claims 1-12 for the preparation of a medicament for the treatment or prophylaxis of atherosclerosis or hypercholesterolemia in a subject.

5 36. Use of a compound according to any of claims 1-12 for the preparation of a medicament for the treatment or prophylaxis of cholestatic liver disease in a subject.

37. Use of a compound according to any of claims 1-12 for the preparation of a medicament for the treatment or prophylaxis of organ fibrosis in a subject.

10 38. Use of a compound according to any of claims 1-12 for the preparation of a medicament for increasing HDL cholesterol in a subject.

15 39. Use of a compound according to any of claims 1-12 for the preparation of a medicament for lowering triglycerides in a subject.

40. A pharmaceutical composition comprising a compound according to any of claims 1-12 for use in the treatment or prophylaxis of a condition mediated by FXR.